

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-114949

(43)Date of publication of application : 16.04.2002

(51)Int.Cl.

C09J 4/00
G11B 7/24

(21)Application number : 2000-305797

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(22)Date of filing : 05.10.2000

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(54) ADHESIVE COMPOSITION FOR OPTICAL DISK, CURED PRODUCT AND ARTICLE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an adhesive composition excellent in durability and reliability as an adhesive for a laminated optical disk such as a DVD or the like having a translucent reflection film comprising a silicone or a silver compound as a translucent reflection film on one of two disk substrates, and a cured product thereof.

SOLUTION: The ultraviolet-curable adhesive composition for laminating optical disks has a weight loss, after left at 80°C for 1 hour in the atmosphere, of at most 2% and contains at least 80 wt.% of ingredients having a weight loss of at most 1%. Furthermore, the ultraviolet-curable adhesive composition for laminating optical disks comprises a (meth)acrylate monomer (A and C), a urethane (meth)acrylate (B), a bisphenol type epoxy (meth)acrylate (F), phosphoric acid (meth)acrylate (E), a hindered amine (G) and a photopolymerization initiator (D). The ultraviolet-curable adhesive composition for laminating optical disks contains at most 15 wt.% of a (meth)acrylate monomer (A) having a molecular weight of 250 or less.

AN 2002:286172 CAPLUS
 DN 136:310901
 ED Entered STN: 17 Apr 2002
 TI UV-curable adhesive compositions having good durability for optical disks
 IN Tokuda, Kiyohisa; Ishii, Kazuhiko; Mizutani, Takeshi; Yokojima, Minoru
 PA Nippon Kayaku Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09J004-00
 ICS G11B007-24
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 74

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002114949	A	20020416	JP 2000-305797	20001005 <--
PRAI JP 2000-305797		20001005		

AB The compns., preferably containing (meth)acrylate monomers, urethane (meth)acrylates, bisphenol A epoxy (meth)acrylates, phosphoric acid (meth)acrylates, hindered amines and photoinitiators have weight loss $\leq 2\%$ after 1h at 80°.

ST optical disk DVD UV curable adhesive; acrylic polyoxyalkylene polyurethane epoxy resin adhesive durability

IT Optical disks
 (DVD; UV-curable adhesive compns. having good durability for optical disks)

IT Polyurethanes, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acrylic-epoxy-polyoxyalkylene-; UV-curable adhesive compns. having good durability for optical disks)

IT Polyoxyalkylenes, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acrylic-epoxy-polyurethane-; UV-curable adhesive compns. having good durability for optical disks)

IT Epoxy resins, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acrylic-polyoxyalkylene-polyurethane-; UV-curable adhesive compns. having good durability for optical disks)

IT Adhesives
 (photocurable; UV-curable adhesive compns. having good durability for optical disks)

IT 411231-36-2P 411231-37-3P 411231-38-4P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (UV-curable adhesive compns. having good durability for optical disks)

DERWENT-ACC-NO: 2002-411978

DERWENT-WEEK: 200244

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TITLE: Ultraviolet curing resin composition adhesive for optical disks, has superior durability, reliability and hardened product

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PATENT-ASSIGNEE: NIPPON KAYAKU KK[NIPK]

PRIORITY-DATA: 2000JP-305797 (October 5, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
JP 2002114949 A	April 16, 2002	JA

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
JP2002114949A	N/A	2000JP-305797	October 5, 2000

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	C09J4/00	20060101
CIPS	G11B7/24	20060101
CIPS	G11B7/258	20060101

ABSTRACTED-PUB-NO: JP 2002114949 A

BASIC-ABSTRACT:

NOVELTY - An ultraviolet curing resin composition has weight loss, after allowing the composition to leave at 80 degrees C for 1 hour in the atmosphere of 2% or less.

USE - The ultraviolet curing resin composition is used for the adhesive and finds its application in its hardened product and an article being the digital versatile disks.

ADVANTAGE - The hardened product obtained by irradiation with ultraviolet rays decreases a volatile component resided in the hardened product. The result less damages the semitransparent reflecting film and polycarbonate used as a material for a disk substrate. The result yields the optical disks having superior durability (reliability) equivalent to that inherent in conventional optical disks using gold as its semitransparent reflection film.

EQUIVALENT-ABSTRACTS:

ORGANIC CHEMISTRY

Preferred Composition: The ultraviolet curing resin composition contains:

- (A) a (meth)acrylate;
- (B) an urethane (meth)acrylate;
- (C) a (meth)acrylate monomer except the (meth)acrylate; and
- (D) a photopolymerization initiator.

Preferred Product: Two optical disks are stuck to each other through the composition for the adhesive. One optical disk has a semitransparent reflecting film consisting of silicone or a silver compound.

TITLE-TERMS: ULTRAVIOLET CURE RESIN COMPOSITION ADHESIVE OPTICAL DISC SUPERIOR DURABLE RELIABILITY HARDEN PRODUCT

DERWENT-CLASS: A89 G03 T03

CPI-CODES: A12-L03C; G03-B02E4;

EPI-CODES: T03-B01;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

018 ; P1592*R F77 D01; M9999 M2017; M9999 M2073; M9999 M2824; M9999 M2813;

Polymer Index [1.2]

018 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63 F41 F89 G0384*R; H0000; H0011*R; P0088;

Polymer Index [1.3]

018 ; ND01; Q9999 Q6644*R; B9999 B3009; K9574 K9483; K9869 K9847 K9790; B9999 B4988*R B4977 B4740;

Polymer Index [1.4]

018 ; G0340*R G0339 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D63 F41 F89 G0384*R; A999 A157*R; A999 A771;

Polymer Index [1.5]

018 ; A999 A771; A999 A179 A157;

Polymer Index [2.1]

018 ; P0862 P0839 F41 F44 D01 D63;

Polymer Index [2.2]

018 ; N9999 N5721*R; K9574 K9483; Q9999 Q8957 Q8935 Q8924 Q8855; B9999 B5436 B5414 B5403 B5276; B9999 B5425 B5414 B5403 B5276; N9999 N5856;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: 2002-324096

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- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]Especially this invention relates to the adhesive composition for optical discs, hardened material, and article which paste together the disc substrate of two sheets represented by DVD about the adhesive composition for optical discs, harden ultraviolet rays by exposure and are pasted up.

[0002]

[Description of the Prior Art]Now the optical disc of a DVD bonding type put in practical use, in the composition of a recording layer, a recording layer comes out further, there are DVD-5 whose storage capacity is about 5 G bytes, and DVD-9 whose storage capacity a recording layer is about 9 G bytes in two-layer, and DVD-9 with large storage capacity is becoming in use now. The substrate of present mainstream DVD-9 uses an aluminium compound for a total reflection film, and uses gold for the translucent reflective layer. In order for the translucent reflective layer to have to make laser penetrate compared with a total reflection film, it had to be thin-film-ized and gold which is the representation of a stable compound has been used.

[0003]However, since gold is an expensive material, as for translucent reflective layer material, change to a silicon compound or a silver compound is considered. In order to raise storage capacity further now, examination of blue laser is progressing. Even if a translucent reflective layer is gold, silicon, or a silver compound in the case of red laser, the permeability of red laser is satisfactory, but having the performance in which the silver compound was excellent from the permeability near 400 nm of blue laser is checked. However, a silver compound tends to receive oxidation and is more unstable than a gold compound. The actual condition is that the adhesives endurance (reliability) equivalent to the conventional lamination optical disc which made gold the translucent reflective layer is not obtained in the lamination disk which uses the translucent reflective layer of a silver compound, but it can still place and be satisfied with

endurance (reliability) of adhesives are not provided. Although it is important to collect and carry out the reuse of the adhesives which flowed at the time of spreading of adhesives in respect of saving resources, if many volatile ingredients are used as a constituent, the viscosity of adhesives will rise, and there is also a problem which is adhesives that a reuse cannot be carried out.

[0004]

[Problem(s) to be Solved by the Invention]Also in the lamination optical disc obtained by pasting up the translucent reflective layer which consists of silver compounds etc., Even if it carries out the reuse of having high endurance (reliability) equivalent to the optical disc which uses the conventional golden translucent reflective layer, and the adhesives, change of viscosity is small, and the generating in question makes it the technical problem to provide few adhesive compositions.

[0005]

[Means for Solving the Problem]As a result of repeating research wholeheartedly that said technical problem should be solved, this invention finds out an adhesive composition in which endurance (reliability) which was excellent when a translucent reflective layer which consists of silver compounds was pasted up is obtained, and came to complete this invention. Namely, this invention, [0006](1) The inside of the atmosphere, an ultraviolet curing nature adhesive composition for optical disc lamination whose weight loss after 1-hour neglect is 2% or less at 80 **.

(2) An ultraviolet curing nature adhesive composition for optical disc lamination which an ingredient whose weight loss after 1-hour neglect is 1% or less contains 80% of the weight or more at 80 ** among the atmosphere among ingredients which constitute a constituent of claim 1.

(3) An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph containing acrylate monomers (meta) (C) and photopolymerization initiators (D) other than urethane (meta) acrylate (B), acrylate (meta) (A), and the (A) ingredient of (1) thru/or (2).

(4) An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of (1) - (3) whose 250 or less acrylate monomer (meta) (A) a molecular weight is 15 or less % of the weight which constitutes a constituent.

(5) An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph containing a phosphoric acid (meta) acrylate compound (E) of (1) thru/or (4).

(6) An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph containing bisphenol type epoxy (meta) acrylate (F) of (1) thru/or (5).

(7) An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph containing a hindered amine compound (G) of (1) thru/or (6).

A lamination optical disc in which one side of an optical disc pasted together with an adhesive composition of any 1 paragraph of (8), (1) to (7) has a translucent reflective layer which consists of silicone or a silver compound.

(9) A lamination optical disc is related with (8) which is DVD, without an optical disc of a statement.

[0007]

[Embodiment of the Invention] This invention is what is characterized by the weight loss after 1-hour neglect being 2% or less at the inside of the atmosphere, and 80 ** about this adhesive composition in the ultraviolet curing nature adhesive composition for optical disc lamination, Among the ingredients which constitute an adhesive composition, among the atmosphere, it is a UV cure adhesive constituent in which the ingredient whose weight loss after 1-hour neglect is 1% or less contains 80 % of the weight or more at 80 **, and a constituent and its hardened material are provided.

[0008] By designing the weight loss after 1-hour neglect at 80 ** among the atmosphere of an adhesive composition become 2% or less, It describes above by making low the volatile component which remains in the hardened material hardened by UV irradiation, The endurance (reliability) which could make low the damage to the polycarbonate etc. which are used as the damage to a translucent reflective layer and a material of a disc substrate, and was excellent in the optical disc as a result can be obtained.

[0009] Among the atmosphere, at 80 **, although 1% or less of ingredient contains 80 % of the weight or more, the weight loss after 1-hour neglect the adhesive composition of this invention, As an ingredient which is satisfied with this invention of the above-mentioned conditions, for example, acrylate monomers (meta). It can choose from oligomer and photopolymerization initiators, such as urethane (meta) acrylate, bisphenol type epoxy (meta) acrylate, and polyester (meta) acrylate.

[0010] As acrylate monomers (meta) which satisfy the above-mentioned conditions, specifically, For example, phenyloxy ethyl acrylate (M. W.192), phenol poly(n**2) ethoxy rate acrylate (M. W.236), Phenol poly(n**4) ethoxy rate acrylate (M. W.324), Dicyclopentenyl oxy-ethyl acrylate (M. W.248), Hydroxypivalate neopentylglycol acrylate (M. W.312), Triethylene glycol monomethyl ether acrylate (M. W.218), Tetraethylene glycol diacrylate (M. W.302), 1,6-hexanediol diacrylate (M. W.226), Bisphenol A poly(n**4) ethoxy rate diacrylate (M. W.512), Tripropylene glycol diacrylate (M. W.300), poly(n**9) ethylene-glycol-diacrylate (M. W.522) tricyclodecanedimethylol diacrylate (M. W.304), Trimethylolpropane triacrylate (M. W.296), dipentaerythritol hexaacrylate (M. W.578), etc. can be mentioned. M. W. means a molecular weight and n means a degree of polymerization, respectively.

[0011] As oligomer which satisfies the above-mentioned conditions, urethane (meta) acrylate (B) and bisphenol type epoxy (meta) acrylate (F) can be used preferably. As an example of

urethane (meta) acrylate (B), it is obtained by the reaction of the following polyols, organic polyisocyanate, and hydroxy group content (meta) acrylate compounds, for example. As polyols, for example, ethylene glycol, propylene glycol, A diethylene glycol, 1,4-butanediol, neopentyl glycol, 1,6-hexanediol, cyclohexane-1,4-dimethylol, 3-methyl-1,5-pentanediol, bisphenol A polyethoxydiol, Bisphenol A polypropoxydiol, a polyethylene glycol, A polypropylene glycol, polybutylene glycol, polytetramethylene glycol, Polyol and the above-mentioned polyol, and polybasic acid, such as trimethylolpropane. It is a reactant of polyester polyol, the above-mentioned polyol, ** polyester polyol, and epsilon-caprolactone obtained by a reaction with (for example, succinic acid, phthalic acid, hexahydro phthalic anhydride, isophthalic acid, terephthalic acid, adipic acid, azelaic acid, etc.). Polycaprolactone polyol, polycarbonate polyol, etc. can be mentioned.

[0012]As organic polyisocyanate, for example Isophorone diisocyanate, Hexamethylene diisocyanate, tolylene diisocyanate, xylene diisocyanate, trimethyl hexamethylene diisocyanate, the dicyclohexyl methane- 4, 4'-diisocyanate, dicyclopentanyl diisocyanate, etc. are mentioned.

[0013]As hydroxy group content (meta) acrylate, For example, 2-hydroxyethyl (meta) acrylate, 2-hydroxypropyl (meta) acrylate, 4-hydroxybutyl (meta) acrylate, cyclohexane-1,4-dimethylolmono- (meta) acrylate, epsilon-caprolactone denaturation 2-hydroxyethyl (meta) acrylate, etc. are mentioned. Even if one sort or at least two sorts or more of above-mentioned urethane (meta) acrylate (B) carries out mixed use at an arbitrary rate, it is not cared about. As amount of [in / used / an adhesive composition], 1 to 70 % of the weight is desirable especially preferred, and 5 to 50 % of the weight is preferred. As a molecular weight of urethane (meta) acrylate (B), 400-10000 are preferred.

[0014]As an example of bisphenol type epoxy (meta) acrylate (F), For example, the product made from Oil recovery Shell Epoxy, Epicoat 802 and 1001, the bisphenol A type epoxy resin of 1004 grades, And the epoxy (meta) acrylate etc. which are obtained by the reaction of bisphenol F type epoxy resin of Epicoat 40019 and 40029 and 40039 grades and acrylic acid (meta) can be mentioned. Even if the above and one sort or at least two sorts or more of bisphenol type epoxy (meta) acrylate (F) carry out mixed use at an arbitrary rate, they are not cared about. As amount of [in / used / an adhesive composition], 0 to 50 % of the weight is 0 to 40 % of the weight desirable especially preferably.

[0015]As photopolymerization initiators which satisfy the above-mentioned conditions, they are 2,2-dimethoxy- 1,2-diphenylethan 1-one and the 2-methyl- 1, for example. - [4-(methylthio) phenyl] -2-morpholinopropane 1-one, 2-benzyl-2-dimethylamino 1 -(4-morpholinophenyl)- The butanone- 1, bis(2,6-dimethoxybenzoyl)-2,4,4-trimethyl pentyl phosphine oxide, Bis(2,4,6-trimethyl benzoyl)-phenyl phosphine oxide, 2,4,6-trimethyl benzoyl diphenylphosphine oxide and 2-hydroxy-2-methyl-1-phenyl-propan-1-one, 1-hydroxy-cyclohexylphenyl ketone, etc. can

be mentioned. In the adhesive composition of this invention, a molecular weight uses 250 or less acrylate monomer (meta) (A) at 15 or less % of the weight. Although it is effective in adjusting the viscosity of a constituent or raising adhesive strength, there are many monomers which volatilize easily on the other hand, and since the above-mentioned (meta) acrylate monomer (A) will have an adverse effect on the endurance of an optical disc, or the reuse of an adhesive composition if it is used at 15 % of the weight or more, it is not preferred.

[0016](Meta) As an example of an acrylate monomer (A), The inside of the above and the compound of acrylate monomers (meta) mentioned as the example by the way, A molecular weight on the compound and concrete target which have the weight loss [good] after 1-hour neglect for 1% at 80 °C among 250 or less a compound and the atmosphere. For example, tetrahydrofurfuryl acrylate (M. W.156), ethylcarbitol acrylate (M. W.188), isobornyl acrylate (M. W.208), neopentyl glycol diacrylate (M. W.212), tricyclo [5,2,1, 0,2,6] Deca nil acrylate (M. W.206) etc. can be mentioned. These (A) ingredients can be mixed and used by one sort or two sorts or more.

[0017]As an example of acrylate monomers (meta) (C) other than the above-mentioned (A) ingredient, a molecular weight can illustrate 250 or more compounds among the above and the compound of acrylate monomers (meta) mentioned as the example by the way. These (C) ingredients can be mixed and used by one sort or two sorts or more. As amount of [in / used / an adhesive composition], 10 to 75 % of the weight is 20 to 60 % of the weight desirable especially preferably.

[0018]Although the above and the compound mentioned as the example by photopolymerization initiators can be mentioned as an example of the photopolymerization initiator (D) used by this invention, for example, the compound whose weight loss after 2-hour neglect is 1% or less at 80 °C is preferred among the atmosphere especially preferably. specifically removing 2-hydroxy-2-methyl-1-phenyl-propan-1-one among the above and the compound mentioned as the example by photopolymerization initiators -- more -- desirable -- ***** -- things are made. These (D) ingredients can be mixed and used by one sort or two sorts or more. As amount of [in / used / an adhesive composition], 0.5 to 20 % of the weight is 1 to 10 % of the weight desirable especially preferably.

[0019]It is preferred to use a phosphoric acid (meta) acrylate compound (E) in the adhesive composition of this invention, in order to improve an adhesive property. As an example of a phosphoric acid (meta) acrylate compound (E), For example, if it is acrylate which has a phosphoric ester skeleton (meta), Monoester, diester, or triester may be sufficient, for example, mono(oxy ethyl methacrylate) phosphoric ester, bis(oxy ethyl methacrylate) phosphoric ester, Tri (oxy ethyl methacrylate) phosphoric ester, etc. are mentioned. The above and a phosphoric acid (meta) acrylate compound (E) can be mixed and used by one sort or two sorts or more. As amount of [in / used / an adhesive composition], 0 to 5 % of the

weight is 0.05 to 3 % of the weight desirable especially preferably.

[0020]It is preferred to use a hindered amine compound (G) in the adhesive composition of this invention, in order to improve endurance (reliability). As an example of a hindered amine compound (G), For example, 2, 2, 6, and 6-tetramethyl 4-PIPERIJINON, 2, 2 and 6, and 6-tetramethyl 4-PIPERIJI Norian, 1,2,2,6,6-pentamethyl 4-PIPERIJI Norian, 4-hydroxy-2,2,6,6-tetramethyl 1-piperidine ethanol, 1,2,2,6,6-pentamethyl 4-piperidyl methacrylate, 2,2,6,6-tetramethyl 4-piperidyl methacrylate, bis(1,2,2,6,6-pentamethyl 4-piperidyl)sebacate, Bis(2, 2, 6, and 6-tetramethyl 4-piperidyl)sebacate, Chimassorb 944LD (made by a tiba speciality chemical company), Tinuvin 622LD (made by a tiba speciality chemical company), Tinuvin 144 (made by a tiba speciality chemical company), ADEKASUTABUSU LA-57 (made by the Asahi electrification company), ADEKASUTABUSU LA-62 (made by the Asahi electrification company), ADEKASUTABUSU LA-67 (made by the Asahi electrification company), ADEKASUTABUSU LA-63 (made by the Asahi electrification company), ADEKASUTABUSU LA-68 (made by the Asahi electrification company), etc. are mentioned. The above-mentioned hindered amine compound (G) can be mixed and used by one sort or two sorts or more. As amount of [in / used / an adhesive composition], 0 to 10 % of the weight is 0.01 to 5 % of the weight desirable especially preferably.

[0021]The adhesive composition of this invention can obtain it by the ability to carry out the mixture solution of each ingredient at ordinary temperature -80 **. The hardened material of this invention can be obtained by irradiating with beams of light, such as ultraviolet rays and visible light, with a conventional method.

[0022]A polyester system, a polycarbonate system, poly acrylic, a polyurethane system, and polyvinyl system resin can also be used for this invention as high molecular polymer. Additive agents, such as an organic solvent, a silane coupling agent, polymerization inhibitor, a leveling agent, light stabilizer, an antioxidant, a spray for preventing static electricity, surface lubricant, and a bulking agent, can also be used together.

[0023]As desirable liquid nature of the adhesive composition of this invention, the viscosity of 25 ** of 1.48-1.58, and a gel fraction measured by the Brookfield viscometer is 70 to 100% as a refractive index (25 **) of 0.01-5 (mgKOH/g), and a hardened material with preferred 100 - 500 mpa-S and acid value.

[0024]A light source will not be asked if hardening by the optical exposure of the adhesive composition of this invention is a lamp which irradiates with an ultraviolet - near-ultraviolet beam of light. For example, low pressure, high voltage or an ultrahigh pressure mercury lamp, a metal halide lamp, a xenon lamp (pulse), an electrodeless lamp, etc. are mentioned.

[0025]If the adhesive composition of this invention can be pasted up so that the thickness of a lamination glue line may be set to 1-100 micrometers, a coating method will not be asked, but a spin coat method, the 2P method, the roll coat method, screen printing, etc. are mentioned.

After pasting the optical disk substrate of two sheets together so that a glue line may be set to 1-100 micrometers, from one side or both sides, it irradiates with an ultraviolet - near-ultraviolet beam of light, and hardens and pastes up.

[0026]

[Example]An example explains this invention still more concretely below. The part in an example is a weight section.

[0027]The mixture solution of the ultraviolet curing nature adhesive composition which consists of a presentation shown in Table 1 was carried out, and it was adjusted.

(An example, a comparative example) In addition, the cable address of each presentation shown in front is as follows.

UA-937: Polyether system urethane acrylate, Nippon Kayaku Co., Ltd. make.

EPA-1: Bisphenol A type epoxy acrylate, Nippon Kayaku Co., Ltd. make.

BP-4EA: Bisphenol A poly($n \times 4$) ethoxy rate diacrylate, Kyoisha make.

4 EG-A: Tetraethylene glycol diacrylate, Kyoisha make.

Screw coat **150: Tetrahydrofurfuryl acrylate, made in Yuuki Osaka.

EC-A: Ethylcarbitol acrylate, Kyoisha make.

PM-2: Bis(oxy ethyl methacrylate)phosphoric ester, Nippon Kayaku Co., Ltd. make.

IRGACURE 184: 1-hydroxycyclohexylphenyl ketone, tiba speciality chemical company make, photopolymerization initiator RUSHIRIN TPO: 2,4,6-trimethyl benzoyldiphenyl phosphine oxide, the BASF A.G. make, a photopolymerization initiator.

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CLAIMS

[Claim(s)]

[Claim 1]The inside of the atmosphere, an ultraviolet curing nature adhesive composition for optical disc lamination whose weight loss after 1-hour neglect is 2% or less at 80 **.

[Claim 2]An ultraviolet curing nature adhesive composition for optical disc lamination which an ingredient whose weight loss after 1-hour neglect is 1% or less contains 80% of the weight or more at 80 ** among the atmosphere among ingredients which constitute a constituent of claim 1.

[Claim 3]An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of claims 1 thru/or 2 containing acrylate monomers (meta) (C) and photopolymerization initiators (D) other than urethane (meta) acrylate (B), acrylate (meta) (A), and the (A) ingredient.

[Claim 4]An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of claims 1-3 whose 250 or less acrylate monomers (meta) (A) a molecular weight is 15 or less % of the weight which constitutes a constituent.

[Claim 5]An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of claims 1 thru/or 4 containing a phosphoric acid (meta) acrylate compound (E).

[Claim 6]An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of claims 1 thru/or 5 containing bisphenol type epoxy (meta) acrylate (F).

[Claim 7]An ultraviolet curing nature adhesive composition for optical disc lamination given in any 1 paragraph of claims 1 thru/or 6 containing a hindered amine compound (G).

[Claim 8]A lamination optical disc in which one side of an optical disc pasted together with an adhesive composition of any 1 paragraph of claims 1 thru/or 7 has a translucent reflective layer which consists of silicone or a silver compound.

[Claim 9]The optical disc according to claim 8 whose lamination optical disc is DVD
